Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL QUALITY MEASURES CLEARINGHOUSE

General

Title

Metabolism and nutrition: percentage of patients receiving artificial nutrition in whom requirements are correctly calculated.

Source(s)

Quality indicators in critically ill patients. Madrid (Spain): Spanish Society of Intensive and Critical Care and Units Coronary (SEMICYUC); 2011. 185 p.

Measure Domain

Primary Measure Domain

Clinical Quality Measures: Process

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the percentage of patients receiving artificial nutrition in whom requirements are correctly calculated.

Rationale

The aim of intensive care medicine is to provide critical patients with the healthcare that they need, ensuring the quality and safety of care. Intensive care medicine is one of the principal components of modern healthcare systems. There is an increasing demand for this resource, which involves high costs.

The quality of care has gradually come to be the central focus of healthcare, and in recent years patient safety has come to represent one of the key aspects of quality. In the case of intensive care medicine, this interest in quality is even more evident, not only because of its social and economic impact, but also because some of the dimensions involved in the quality of care of critical patients take on greater importance: critical patients are more vulnerable, access to critical care is more limited so efforts to

distribute resources equitably are more important, scant scientific evidence is available, and the efficiency is limited.

Critical patients are in a hypermetabolic state with increased consumption of different substrates. Their calorie requirements depend on anthropometric factors and on the type and severity of disease, as well as on whether or not malnutrition was present before illness. There is sufficient clinical evidence that both providing too many and providing too few calories increase the risk of infection and of organ dysfunction. Thus, calculating these patients' calorie requirements is recommended.

Evidence for Rationale

Faisy C, Guerot E, Diehl JL, Labrousse J, Fagon JY. Assessment of resting energy expenditure in mechanically ventilated patients. Am J Clin Nutr. 2003 Aug;78(2):241-9. PubMed

Frankenfield D, Hise M, Malone A, Russell M, Gradwell E, Compher C, Evidence Analysis Working Group. Prediction of resting metabolic rate in critically ill adult patients: results of a systematic review of the evidence. J Am Diet Assoc. 2007 Sep;107(9):1552-61. [46 references] PubMed

Kreymann KG, Berger MM, Deutz NE, Hiesmayr M, Jolliet P, Kazandjiev G, Nitenberg G, van den Berghe G, Wernerman J, DGEM (German Society for Nutritional Medicine), Ebner C, Hartl W, Heymann C, Spies C, ESPEN (European Society for Parenteral and Enteral Nutrition). ESPEN Guidelines on Enteral Nutrition: Intensive care. Clin Nutr. 2006 Apr;25(2):210-23. [70 references] PubMed

McClave SA, Martindale RG, Vanek VW, McCarthy M, Roberts P, Taylor B, Ochoa JB, Napolitano L, Cresci G, A.S.P.E.N. Board of Directors, American College of Critical Care Medicine, Society of Critical Care Medicine. Guidelines for the Provision and Assessment of Nutrition Support Therapy in the Adult Critically Ill Patient: Society of Critical Care Medicine (SCCM) and American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.). JPEN J Parenter Enteral Nutr. 2009 May-Jun;33(3):277-316. PubMed

Ortiz Leyba C, Gomez-Tello V, Seron Arbeloa C. [Requirements of macronutrients and micronutrients]. Nutr Hosp. 2005 Jun;20 Suppl 2:13-7. PubMed

Quality indicators in critically ill patients. Madrid (Spain): Spanish Society of Intensive and Critical Care and Units Coronary (SEMICYUC); 2011. 185 p.

Primary Health Components

Metabolism; artificial nutrition; calorie and protein requirements

Denominator Description

Total number of patients receiving artificial nutrition (see the related "Denominator Inclusions/Exclusions" field)

Numerator Description

Number of patients receiving artificial nutrition in whom requirements are correctly calculated (see the related "Numerator Inclusions/Exclusions" field)

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

A clinical practice guideline or other peer-reviewed synthesis of the clinical research evidence

A formal consensus procedure, involving experts in relevant clinical, methodological, public health and organizational sciences

A systematic review of the clinical research literature (e.g., Cochrane Review)

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Additional Information Supporting Need for the Measure

Unspecified

Extent of Measure Testing

Unspecified

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Hospital Inpatient

Intensive Care Units

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Single Health Care Delivery or Public Health Organizations

Statement of Acceptable Minimum Sample Size

Unspecified

Target Population Age

Age greater than or equal to 18 years

Target Population Gender

Either male or female

National Strategy for Quality Improvement in Health Care

National Quality Strategy Aim

Better Care

National Quality Strategy Priority

Prevention and Treatment of Leading Causes of Mortality

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Getting Better

IOM Domain

Effectiveness

Data Collection for the Measure

Case Finding Period

Unspecified

Denominator Sampling Frame

Patients associated with provider

Denominator (Index) Event or Characteristic

Institutionalization

Therapeutic Intervention

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions

Total number of patients receiving artificial nutrition

Population: All patients who receive artificial nutrition in the intensive care unit in the period reviewed.

Exclusions

Unspecified

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions

Number of patients receiving artificial nutrition in whom requirements are correctly calculated

Note:

- Calorie requirements can be calculated using one of the following methods:
  - Indirect calorimetry
  - Formulas for estimating calorie requirements:
    - Harris – Benedict formula, adjusted for disease factors
    - Penn State equation. Indicated in patients undergoing mechanical ventilation.
  - Adjusted for weight and degree of stress
- Between 25 to 30 Kcal/kg in severe patients
- Nitrogen requirements rise with the intensity of the lesion and are calculated as follows:
  - In the proportion, non-protein calories to grams of nitrogen: 1gr/N for every 80/120 Kcal. The greater the lesion the greater the proportion of nitrogen to calories.
  - Between 0.15 to 0.25 grams N_2/kg/day

Exclusions

Unspecified

Numerator Search Strategy

Institutionalization

Data Source

Electronic health/medical record

Paper medical record

Type of Health State

Does not apply to this measure

Instruments Used and/or Associated with the Measure

Unspecified

Computation of the Measure

Measure Specifies Disaggregation

Does not apply to this measure

Scoring

Rate/Proportion

Interpretation of Score

Desired value is a higher score

Allowance for Patient or Population Factors

not defined yet

Standard of Comparison

not defined yet

Prescriptive Standard

Standard: 85%

Evidence for Prescriptive Standard

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Identifying Information

Original Title

Calorie and protein requirements in critical patients.

Measure Collection Name

Quality Indicators in Critically Ill Patients

Measure Set Name

Metabolism and Nutrition

Submitter

Spanish Society of Intensive and Critical Care and Units Coronary - Clinical Specialty Collaboration

Developer

Spanish Society of Intensive and Critical Care and Units Coronary - Clinical Specialty Collaboration

Funding Source(s)

Boehringer Laboratories

Composition of the Group that Developed the Measure

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Financial Disclosures/Other Potential Conflicts of Interest

Unspecified

Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2011 Mar

Measure Maintenance

Unspecified

Date of Next Anticipated Revision

2016 Jul

Measure Status

This is the current release of the measure.

The measure developer reaffirmed the currency of this measure in May 2016.

Measure Availability

Source available in English and Spanish from the Spanish Society of Intensive and Critical Care and Units Coronary (SEMICYUC) Web site.

For more information, contact SEMICYUC at Paseo de la Reina Cristina, 36, 4^{o} D, Madrid, Spain; Phone: +34-91-502-12-13; Fax: +34-91-502-12-14; Web site: www.semicyuc.org; E-mail: secretaria@semicyuc.org.

NQMC Status

This NQMC summary was completed by ECRI Institute on January 6, 2014. The information was verified by the measure developer on February 26, 2014.

The information was reaffirmed by the measure developer on May 10, 2016.

Copyright Statement

Production

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and Units Coronary (SEMICYUC); 2011. 185 p.

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